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EXAMINER

CHARIOUI, MOHAMED

ART UNIT

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Application Number: 10/064,731  
Filing Date: August 12, 2002  
Appellant(s): CHARETTE ET AL.

**MAILED**  
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**GROUP 2600**

Raymond L. Coppiellie  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 10/16/2006 appealing from the Office action mailed 3/27/06.

Art Unit: 2857

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

5,551,298	Rayment	3-1995
6,257,063	Uhlig	5-2000
2004.0015251	Hanada et al.	9-2001

"NVH Reduction Trends" ([http://www.sae.org/autog/nvh\\_reduction/03.htm](http://www.sae.org/autog/nvh_reduction/03.htm))

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 4, 5, 10 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rayment (U.S. 5,551,298) in view of Uhlig (U.S. 6,257,063) and "NVH Reduction Trends" ([http://www.sae.org/automag/nvh\\_reduction/03.htm](http://www.sae.org/automag/nvh_reduction/03.htm)).

**As per claims 1, 4, 10 and 11**, Rayment teaches imparting energy to the product to simulate an in use condition of the product (see col. 1, lines 45-58); measuring the vibration induced noise emitted from the product (see col. 3, lines 25-43 and col. 4, lines 39-48); establishing a threshold metric generating an objective metric based on the measured the vibration induced noise includes the steps of acquiring the vibration induced noise data for a defined time period (see col. 1, line 45 to col. 2, line 50); comparing the objective metric with the threshold metric; and generating feedback, the feedback including information relating to the comparison of the objective metric and the threshold metric (see col. 1, lines 61-67; col. 2, lines 41-51; and col. 3, lines 25-43).

Rayment fails to teach measuring the sound level emitted from the product.

Uhlig teaches this feature (see col. 4, lines 4-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Uhlig's teaching into Rayment's invention because the modification would determine whether the sound level emitted from the product is within the acceptable range or not and necessary actions would be performed on the product when the sound level of the product is not within the acceptable range to assure proper functioning of the product.

Rayment fails to teach computing the objective metric based on an N10 loudness scale from the acquired sound data.

"NVH Reduction Trends" teaches this feature (see page 3, 5<sup>th</sup> paragraph). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate "NVH Reduction Trends"'s teaching into Rayment's invention, because it would provide sound data measurements N10 loudness scale. Therefore, changes in peaks of the vibration sound levels would be indicated and performance of the product would be evaluated.

**As per claim 5**, Rayment further teaches performing statistical processing based on the saved information; and preparing reports based on the saved information (see col. 1, lines 59-67).

**Claims 2, 6-9, 12, 13, and 15-20**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rayment in view of Uhlig and "NVH Reduction Trends" and further in view of Hamada et al. (U.S. 2004/0015251).

**As per claims 2, 6-9, 12, 13, 15, 18 and 19**, Rayment in view of Uhlig and "NVH Reduction Trends" teach the system as stated above except for performing any repairs

Art Unit: 2857

necessary to the product such that the noise level of the product meets acceptable noise level standards.

Hamada et al. teach this feature (see paragraphs [0017] and [0029]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Hamada et al.'s teaching into Rayment in view of "NVH Reduction Trends"'s teaching, because it would repair the product defect. Therefore, the noise cause by the product abnormality would be reduced or eliminated and the product noise level would within the product acceptable noise level range.

**As per claims 16, 17 and 20**, Rayment further teaches saving data relating to each vehicle tested including, the objective metric, threshold metric, and any diagnosis and repair; and performing a statistical analysis on the saved data (see col. 1, lines 45-67).

#### **(10) Response to Argument**

A(1). Appellant argues that Uhlig '063 is not concerned with objectively monitoring a noise level occurring in a product.

The Examiner points out here that Rayment '298 identifies vibration induced vehicle noises by determining the frequency of the vibration induced vehicle noise, since this noise can be heard and the Appellant's preamble recites monitoring the noise level, the Examiner considers this noise to be sound. Further, Rayment compares this frequency with a set of stored frequencies to identify the source of the vibration-induced noise (see col. 1, lines 45-58). The Examiner also sees that it is well known in the art to determine the noise or sound level when having the frequency of the noise or the

Art Unit: 2857

sound. Therefore, the Examiner introduced Uhlig to show that sound level can be determined from the frequency (see col. 4, lines 4-34).

Appellant also argues that the Examiner offers no support for the motivation for combining Rayment and Uhlig.

Examiner disagrees with the Appellant's argument because the support for this statement is in Rayment, since Rayment compares the frequency of the noise with the stored frequencies at which known vibration induced noises have been found in the past to identify the vibration induced noises on vehicles (col. 2, lines 46-50).

Appellant argues that the Examiner does not explain the motivation, suggestion or teaching set forth in "NVH Reduction Trends" that would lead a person of ordinary skill in the art to combine it with Rayment '298 and Uhlig '063. "NVH Reduction Trends" deals with sound measurements on a N10 loudness scale. Rayment uses the vibration frequency at which a sound occurs to determine or identify a vibration induced noise occurring in a vehicle.

The Examiner disagrees with the Appellant's argument because Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise (see Rayment col. 5, lines 15-43), "NVH Reduction Trends", (page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs), teach that N10 loudness scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values. Therefore, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle.

A(2). Appellant argues that Rayment does not teach selecting a product that meets allowable noise level standards, measuring the sound level of said selected product and using the measured sound level of the selected product to compute a threshold metric based on a N10 loudness scale.

The Examiner disagrees with the Appellant's argument because Rayment teaches comparing the frequency at which the vibration induced noise occurs with a set of stored data to identify the source of vibration induced noise (see col. 1, lines 55-58). The Examiner considers the stored data to be the data of the product that meets allowable noise level standards, since one of ordinary skill in the art can build up a set of stored data that would be used to determine the source of the occurring noise in a tested product (see Rayment, col. 1, lines 62-67). Regarding, measuring the sound level of the product and using the measured sound level of the product to compute a threshold metric based on a N10 loudness scale Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise (see Rayment col. 5, lines 15-43), "NVH Reduction Trends", (page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs), teach that N10 loudness scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values. Therefore, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle.



A(3). Appellant argues that Rayment does not teach measuring the level of the vibration induced sound and computing an objective metric and comparing the objective metric with a threshold metric.

Examiner disagrees with the Appellant's argument because it identifies vibration induced vehicle noises by determining the frequency of the vibration induced vehicle noise, since this noise can be heard. The Examiner considers this noise to be sound. Further, Rayment compares this frequency with a set of stored frequencies to identify the source of the vibration-induced noise (see col. 1, lines 45-58). The Examiner also sees that it is well known in the art to determine the noise or sound level when having the frequency of the noise or the sound. Therefore, the Examiner introduced Uhlig to show that sound level can be determined from the frequency (see col. 4, lines 4-34).

A(4). Appellant argues that that there is no motivation to combine the prior art as proposed to reject the limitation of claim 11, that "the objective metric and the threshold are based on a N10 loudness scale".

Examiner disagrees with the Appellant's argument because the Examiner considers that the objective metric corresponds to the measurement data (see Rayment col. 5, lines 20-44) and the threshold metric corresponds to the 10% percent of the set of the measured values (see "NVH Reduction Trends", page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs). Since Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise "NVH Reduction Trends" teach that N10 loudness

Art Unit: 2857

scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle.

A(5). Appellant argues that Rayment does not teach “performing statistical processing based on the saved information; and preparing report based on the saved information.”

Examiner disagrees with the Appellant’s argument because the Examiner sees that Rayment teaches “performing statistical processing based on the saved information” (see Rayment, col. 4, line 64 to col. 5, line 43). Also, Rayment teaches preparing report based on the saved information on a computer screen (see col. 2, lines 38-41).

B(1). Appellant argues that nothing in the combination of Rayment ‘298, Uhlig ‘063 and “NVH Reduction Trends” teaches the use of determining when the objective metric exceeds the threshold metric and subjectively evaluating the noise emitted from the product when the objective metric exceeds the threshold metric.

Examiner disagrees with the Appellant’s argument because the Examiner considers that the objective metric corresponds to the measurement data (see Rayment col. 5, lines 20-44) and the threshold metric corresponds to the 10% percent of the set of the measured values (see “NVH Reduction Trends”, page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs). Since, Rayment teaches calculating the percentages for indication of likelihood of what

causes the particular sound or noise "NVH Reduction Trends" teach that N10 loudness scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle.

B(2). Appellant argues that Rayment does not teach preparing at least one report as part of the step of generating feedback.

Examiner disagrees with the Appellant's argument because Rayment teaches generating feedback report (see Rayment col. 2, lines 28-41 and Fig. 3).

B(3). Appellant argues that Rayment does not teach the steps of documenting any diagnosis and repair relating to the product, determining the most common cause of the noise in the product and providing possible suggestions to improve the product by reducing overall noise levels.

Examiner disagrees with the Appellant's argument because Rayment teaches storing set of data that indicates the cause of the noise (see col. 1, lines 62-67) and the necessary remedial actions to be taken (see col. 4, lines 48-55).

B(4). Appellant argues that Rayment does not teach documenting, using a standardized list of descriptors, the cause of the noise and any necessary repairs to the product.

Examiner disagrees with the Appellant's argument because Rayment teaches storing set of data that indicates the cause of the noise (see col. 1, lines 62-67) and the necessary remedial actions to be taken (see col. 4, lines 48-55). The Examiner considers storing set of data to be documenting the data related to the diagnostics of the tested vehicle.

B(5). Appellant argues that nothing in the combination of Rayment '298, Uhlig '063 and "NVH Reduction Trends" discloses evaluating the comparison of the objective metric with the threshold metric to determine whether the vibration induced sound level in the vehicle is unacceptable, when the evaluation indicates that the sound level is unacceptable diagnosing the vehicle to determine the source of the unacceptable sound level and performing an appropriate repair.

Examiner disagrees with the Appellant's argument because the Examiner considers that the objective metric corresponds to the measurement data (see Rayment col. 5, lines 20-44) and the threshold metric corresponds to the 10% percent of the set of the measured values (see "NVH Reduction Trends", page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs). Since, Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise "NVH Reduction Trends" teach that N10 loudness scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a

Art Unit: 2857

vibration induced noise occurring in a vehicle. Regarding, performing an appropriate repair (see Rayment, col. 4, lines 48-55).

B(6). Appellant argues that Rayment does not teach documenting any diagnosis and repair and inputting into the data acquisition apparatus information pertaining to the diagnosis and repair.

Examiner disagrees with the Appellant's argument because Rayment teaches storing (inputting) set of data that indicates the cause of the noise (see col. 1, lines 62-67) and the necessary remedial actions to be taken (see col. 4, lines 48-55).

B(7). Appellant argues that Rayment does not teach saving data relating to each vehicle tested, including the objective metric, threshold metric and any diagnosis and repair along with performing a statistical analysis on the saved data.

Examiner disagrees with the Appellant's argument because Rayment teaches storing vehicles test data in a database (see col. 4, lines 39-48), the necessary repair (see col. 4, lines 48-63) and performing a statistical analysis on the saved data (col. 4, line 64 to col. 5, line 43).

B(8). Appellant argues that Rayment does not teach saving data relating to each vehicle tested including the objective metric, threshold metric and any diagnosis and repair, performing statistical processing on the saved data, generating feedback based on the statistical processing, reviewing the feedback to determine repair information and

using the feedback to develop corrective action to reduce the level of vibration induced sound.

Examiner disagrees with the Appellant's argument because Rayment teaches storing vehicles test data in a database (see col. 4, lines 39-48), the necessary repair (see col. 4, lines 48-63) and performing a statistical analysis on the saved data (col. 4, line 64 to col. 5, line 43) and generating feedback based on the statistical processing, reviewing the feedback to determine repair information and using the feedback to develop corrective action to reduce the level of vibration induced sound (see Rayment col. 4, line 48 to col. 5, line 43; col. 4, lines 23-39; Fig. 3; and Fig. 4 ).

B(9). Appellant argues that Rayment '298, Uhlig '063, "NVH Reduction Trends" and Hamada do not disclose measuring and recording the sound level emitted from the vehicle during operation and computing an objective metric based on the recorded sound level after which the vehicle is evaluated to determine the source of the sound when the objective metric exceeds a threshold metric.

Examiner sees that Hamada teaches recording the sound level emitted from equipment (see Hamada, paragraphs [0007] and [0018]). As explained above, Rayment in view of Uhlig and "NVH Reduction Trends" teach computing an objective metric based on the sound level after which the vehicle is evaluated to determine the source of the sound when the objective metric exceeds a threshold metric, since the Examiner considers that the objective metric corresponds to the measurement data (see Rayment col. 5, lines 20-44) and the threshold metric corresponds to the 10%

percent of the set of the measured values (see "NVH Reduction Trends", page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs). Since, Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise "NVH Reduction Trends" teach that N10 loudness scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle. Regarding, performing an appropriate repair (see Rayment, col. 4, lines 48-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Hamada's teaching into Rayment in view of Uhlig and "NVH Reduction Trends"'s teaching because it would analyze the recorded sound to evaluate the equipment and determine any necessary repair.

B(10). Appellant argues that Rayment '298, Uhlig '063, "NVH Reduction Trends" and Hamada do not teach that the objective metric and the threshold metric are based on a N10 loudness scale.

Examiner disagrees with the Appellant's argument because the Examiner considers that the objective metric corresponds to the measurement data (see Rayment col. 5, lines 20-44) and the threshold metric corresponds to the 10% percent of the set of the measured values (see "NVH Reduction Trends", page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs). Since, Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise "NVH Reduction Trends" teach that N10 loudness

Art Unit: 2857

scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle.

B(11). Appellant argues that Rayment does not teach documenting the evaluation and repair, saving data related to each vehicle tested including the recorded sound level, the objective metric, threshold metric, the evaluation and any repair, performing statistical processing on the saved data, generating feedback information based on the statistical processing, and using the feedback to develop corrective action to reduce the Sound level in the vehicle.

Examiner disagrees with the Appellant's argument because Rayment teaches storing set of data that indicates the cause of the noise (see col. 1, lines 62-67) and the necessary remedial actions to be taken (see col. 4, lines 48-55). The Examiner considers this teaching to include storing and documenting the evaluation and repair data concerning the diagnostics of the vehicle. Regarding the recorded sound level, the objective metric, threshold metric, the evaluation and any repair, performing statistical processing on the saved data, generating feedback information based on the statistical processing, and using the feedback to develop corrective action to reduce the Sound level in the vehicle. The Examiner sees that Hamada teaches recording the sound level emitted from equipment (see Hamada, paragraphs [0007] and [0018]). As explained above, Rayment in view of Uhlig and "NVH Reduction Trends" teach computing an



Art Unit: 2857

objective metric based on the sound level after which the vehicle is evaluated to determine the source of the sound when the objective metric exceeds a threshold metric, since the Examiner considers that the objective metric corresponds to the measurement data (see Rayment col. 5, lines 20-44) and the threshold metric corresponds to the 10% percent of the set of the measured values (see "NVH Reduction Trends", page 1, 5<sup>th</sup> and 6<sup>th</sup> paragraphs). Since, Rayment teaches calculating the percentages for indication of likelihood of what causes the particular sound or noise "NVH Reduction Trends" teach that N10 loudness scale uses statistical percentile to describe a set of noise measurements as a single value and that N10 is that level reached or exceeded by 10% of the values, one of ordinary skill in the art would use the N10 loudness scale to determine or identify a vibration induced noise occurring in a vehicle. Regarding, performing an appropriate repair (see Rayment, col. 4, lines 48-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Hamada's teaching into Rayment in view of Uhlig and "NVH Reduction Trends"'s teaching because it would analyze the recorded sound to evaluate the equipment and determine any necessary repair. Regarding the use of the feedback to develop corrective action to reduce the sound level of the vehicle, Rayment teaches displaying on a computer screen the information about the tested vehicle to determine the corrective actions (see col. 2, lines 28-41 and col. 4, lines 48-55).

C(1). Appellant argues that the Examiner has offered no support for the rejection of claim 9.

Claim 9 recites that the standardized list corresponds to known warranty code parameters.

In paragraph [0010] of the specification, it is explained that the customer concerned code or warranty parameters are used to track the saved data of a vehicle.

The Examiner sees that the standardized list correspond to known warranty code parameters to be codes used to retrieve the saved diagnostic data corresponding to the tested vehicles and it is well know that each file needs a name or code so that it can be retrieved from the database.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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